The stripper zone (103) may suitably contain internals to enhance the stripping efficiency. Preferably the height of the stripping bed, being the distance between the lowest positioned stripping gas supply means and the fluidized bed level (115) is at least 3 times the average diameter of the stripping zone (103). The superficial steam velocity in the fluidized bed is preferably between 0.05 and 1 m/s, and more preferably between 0.1 and 0.7 m/s. Preferably between 3 and 9 kg steam per ton circulating catalyst is supplied to the stripping zone (103).

The gas outlet conduit (109) is in fluid connection with one or more, preferably 2-4 secondary gas-solids cyclones (only one secondary cyclone shown in figure 3 as (117)) via conduit (118) and optionally one or more other conduits (118'). The catalyst which is removed from the vapours in the secondary cyclone will be transported to the stripping zone (103) via dipleg (119). The cleaned hydrocarbon vapours are discharged via conduit (120) for further processing.

In the apparatus shown in Figure 3 all the stripping gas is discharged from the stripping zone (103) via the primary cyclone (102) to the gas outlet conduit (109) of the primary cyclone (102) because the primary cyclone (102) and stripping zone (103) together form one tubular vessel (101). Although this is a preferred embodiment of the invention, other embodiments can also be envisaged, wherein only part of the stripping gas is discharged via this opening (106) and wherein the advantages, namely an improved separation of solids and gas, are also achieved. Examples of such embodiments of the invention are illustrated by Figures 4 and 5.

In Figure 4 an embodiment is shown wherein the lower part of the tubular stripping zone (103) protrudes a larger tubular vessel (127) from above. The lower end of

the tubular stripping zone (103) is in fluid communication with the interior of vessel (127). In vessel (127) additional means (124) for supplying stripping steam are present. At the top of vessel (127) a conduit (126) is present through which part of the stripping steam can be discharged. This conduit (126) is suitably in fluid communication with the downstream part of reactor riser (105) or with the gas outlet conduit (109) or (118). The larger tubular vessel provides, in use, a secondary stripping zone (125') next to the primary stripping zone (125). The dipleg of the secondary cyclone is preferably in fluid communication with the secondary stripping zone.

Figure 5 illustrates an apparatus for the separation of catalyst particles from a gaseous stream wherein one or more primary cyclones, secondary cyclone(s) and the stripping zone are located in a reactor vessel having a larger diameter than the primary cyclone. The reactor vessel is furthermore provided with inlet and outlet means to supply the suspension of catalytic particles and vapour and means to discharge stripped catalyst and vapours essentially free of catalyst particles. The inlet means to supply the suspension of catalytic particles to the primary cyclone is in fluid connection with the downstream end of a reactor riser (128) of a fluid catalytic cracking (FCC) process. Such a downstream end of a reactor riser (128) may be positioned within (as shown) or outside the reactor vessel (130). The primary cyclone (129) is located in a reactor vessel (130), in which cyclone (129) the gas-solids stream enters tangentially into a vertical tubular cyclone housing. The solids are discharged to a primary stripping zone (131) located at the lower end of the reactor vessel (130). A partly cleaned gas stream and part of the stripping gas is discharged upwards through a vertical gas-outlet

conduit (132), which gas-outlet conduit does not protrude the primary cyclone roof (133) from above. The solids still present in the partly cleaned gas obtained are subsequently separated in a second cyclone apparatus (134). As described earlier more than one primary cyclone and more than one secondary cyclone may be fluidly connected to the reactor riser. For clarity reasons these cyclones are not shown. The primary stripping zone (131) is formed by the open lower end of the tubular housing of the primary cyclone (129) projecting downwards to a point below the fluidized bed level (141) of a main fluidized-bed zone (135) present in the lower part of reactor vessel (130). Stripping gas is supplied to the primary and main fluidized bed zone by means (137) and optionally by means (136). Because the tubular housing of the primary cyclone (129) is smaller than the reactor vessel (130) only a part of the stripping gas will leave the reactor vessel (130) via conduit (132). The remaining part of the stripping gas will leave the vessel (130) via slit (138) present in the gas outlet conduit (132), secondary cyclone (134) and the secondary cyclone gas outlet (139). Catalyst separated in secondary cyclone (134) are returned to the main stripping zone (135) via dipleg (140). The primary cyclone (129) may additionally be equipped with a vortex stabiliser (111) and a tube (121) as shown in Figure 3. The preferred ratio of d1 and d2 are as described above.

The embodiment of Figure 5 can advantageously be obtained by a simple modification of the primary cyclone of an existing FCC reactor vessel. An example of such a known FCC reactor vessel is described in the WO-A-9742275.

Examples of FCC processes in which the apparatus according the invention can be suitably used are described in the afore mentioned patent publications and